Prentice Hall
Algebra 2, Algebra II

Degree of Evidence regarding the Standards for Mathematical Practice:

Minimal Evidence

Summary of evidence:

1. **Make sense of problems and persevere in solving them**. In the chapters reviewed, there are few open-ended problems. The open-ended questions are typically found in the practice problems and are delineated as such. Students are typically directed in how they should solve a particular problem, and then are asked to replicate the process in the practice problems. Students are occasionally directed to develop a plan to solve a problem in the "Think About A Plan" practice problems. Opportunities for error analysis occur in a few problems in each chapter. In the chapters reviewed, there is some evidence of making connections among tables, graphs, equations, and situations (e.g. p.434 Problem 1, p.437 Problem 4). There are some opportunities for students to explain or describe their solutions within the practice problems, but these opportunities are presented as "writing" problems. It would be up to the teacher as to how these problems are implemented. Overall, there are limited open-ended problem-solving opportunities for students to tackle. Most examples guide students in exactly what process to use in order to reach the desired answer. There are limited opportunities for students to create a problem-solving plan of their own and to follow through.
2. **Reason abstractly and quantitatively**. In the chapters reviewed, there are some application problems ingrained in the unit. Students are sometimes asked to create a model (e.g. p.445 Problem 3). There is not much connection between applications and representations using symbols. Often, symbols just appear in the formulas given to the students. Some of the error analysis problems tackle the concept of reasonableness. In addition, students are at times directed to conduct estimations to solve a problem. There are some application problems or examples spread throughout the chapter. Most questions are solved by applying an algorithm, which the students have not generalized or formed on their own through the help of a model.
3. **Construct viable arguments and critique the reasoning of others**. In the chapters reviewed, there are some opportunities for students to explain their reasoning. Problems are mainly focused on arriving at a numerical answer, with some problems in each section requiring an explanation or description. In the chapters reviewed, there was no mention of students sharing their methods with the class. Explanations and discussions of justification are limited in the chapters reviewed. There are some problems included in the student practice that the teacher could use to foster student analysis and justification to others. Overall, there are limited opportunities for students to justify their thinking. Opportunities will rely on teacher facilitation of the practice problems.
4. **Model with Mathematics**. In the chapters reviewed, students are rarely directed to create a model of their own. Typically the model to use is already provided for them in the textbook, with the student not given the opportunity to have choice in which model to use. Some "Concept Bytes" detail the creation of a model, but these activities are separate from the section's lesson and rely on teacher implementation. In the application questions, answers are in context. There is some explicit connection among tables, graphs, equations, and situations in the chapters reviewed. Students have some additional opportunities to work with tables and equations in the labs, but these activities were not included for review, and are separate from the section lessons. The applications are more in the form of a closed word problem with the exception of the occasional open-ended problem in the student practice problems. Overall, there are few opportunities for students to create mathematical models. Students are presented with how the

book details they should solve a problem, and then they are tasked with practicing the use of the prescribed algorithm.

5. **Use appropriate tools strategically.** Graphing calculators are used throughout the text, which often includes screen shots of the calculator. Students are asked to use graphing calculators to help them in the exploration of some concepts in the "Concept Bytes" interspersed in the text, but not inherent in the section examples. It would be up to the teacher to include these activities in the course to help students grapple with the various tools. Overall, tool and technology use is primarily in the form of using the graphing calculator. It would be up to the teacher to implement additional tools. In the chapters reviewed, there was little evidence of evaluating the strength and weaknesses of tools.
6. **Attend to precision.** Examples use proper notation and are precise. In the chapters reviewed, students are asked to conduct error analysis and to explain misconceptions through interspersed practice problems, but it is presented as a written communication rather than as a chance to talk about the mathematics with others. In the chapters reviewed, examples of precise communication were not present. Students could be given opportunities to share and discuss their responses through the teacher implementation of the course. Overall, there is attention to precision in the examples but no discussion for students to tackle. The fostering precise communication would rely on teacher facilitation of student activities presented in the teacher resource or in the labs.
7. **Look for and make use of structure**. In the chapters reviewed, there are few opportunities for students to look at examples and then generalize for themselves. Typically the text follows the pattern of giving students the formula, showing some examples using the formula, and then providing practice problems to complete on their own using the formula. It would depend on the teacher implementing additional labs on his/her own. The rule is given and then worked-out examples follow. The student resource contains few activities for students to explore patterns to create generalizations, and these opportunities are separate from the section's lesson. In the chapters reviewed, there is limited to no connection to prior learning. Students are simply given the new rule to apply. There are some opportunities for students to generalize their thoughts for some of the practice problems, but this is primarily only after the text has told them the algorithm or rule without any discovery.
8. **Look for and express regularity in repeated reasoning.** In the chapters reviewed, students are rarely, if ever, asked to look at patterns and generalize on their own. Most of the time, the book just provides formula. There are some activities interspersed in the chapters which guide students to analyze and generalize their findings. Since the labs are not ingrained in the section examples themselves, they could be skipped. It would be up to the teacher to take the time to implement these activities, which are few. Overall, there are few to no opportunities for students to generalize a pattern to determine a rule. Opportunities to meet this standard would depend on the teacher taking the initiative to incorporate it into the course.